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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,780	03/21/2006	Takeshi Iwasaki	Q77750	9557
23373 7590 12/30/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER HARRIS, GARY D				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
12/30/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/572,780

Applicant(s)

IWASAKI ET AL.

Examiner

GARY D. HARRIS

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 5, 7, 8 and 10-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1, 4, 5, 7, 8, 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments, see remarks, filed 9/25/2008, with respect to the rejection(s) of claim(s) 1-5, 7 & 11 under 35 USC 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Girt US 2005/0058855.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, it is not clear as to what is included in the grain boundary region. The claim has been amended such that the oxide region is not clear as to the number of oxides required. Clarification is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-5, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa et al. US 6,689,456, and further in view of Girt (US 2005/0058855).

As to Claim 1, Nakazawa et al. '456 teaches a perpendicular magnetic recording (Col. 17, Line 23-41) with a nonmagnetic underlayer (Col. 1, Line 38-47) and crystal structure with two different oxides used in the grain boundary regions (Col. 7, Line 34-50). Nakazawa et al. '456 discloses multiple oxide materials used to form grain boundary regions (Col. 2, 3 Line 65-67, 1-11 respectively) (see tables 1, 2 & 3) but does not disclose the oxides listed in group A & B in applicants claim. However, Girt '855 discloses a perpendicular recording medium having a substrate, a soft magnetic layer (3), an interlayer (4) corresponding to the claimed "nonmagnetic underlayer", a CoPt-based magnetic layers containing oxides of Cr and Ti, Cr and Nb, or Cr and Si (see Fig 5, paragraphs [0010]-[0019], [0023], [0025].) The reference provides examples in paragraph [0023] wherein the amount of oxygen in the magnetic layer is calculated to be 32 or 34 at% (i.e. $2 \text{ mol\% TiO}_2 \text{ (or SiO}_2\text{)} + 10 \text{ mol\% Cr}_2\text{O}_3 = 32 \text{ at\% O}$; $2 \text{ mol\% of Nb}_2\text{O}_5 + 10 \text{ mol\% Cr}_2\text{O}_3 = 34 \text{ at\% O}$). These oxides are used to enhance magnetic properties and match the intermediate layers. It would have been obvious to optimize the amount and percentage to manipulate ratios in order to better match the intermediate layer.

As to Claim 4, Nakazawa et al. '456 teaches oxides selected to improve matching including W in the Cr component of a Cr-Ti alloy system (Col. 14, Line 23-28), (Col. 11, 12, Table 2).

As to Claim 5, Nakazawa et al. '456 discloses the use of SiO₂ (Si oxide) (Col. 11, Line 20-25), Cr and Ta oxide (Col. 10 Line 1-3).

As to Claim 7, Nakazawa et al. '456 discloses molar parts (mole percentages) smaller than main component (Col. 13, Line 41-46).

As to Claim 11, Nakazawa et al. '456 discloses a CoPt alloy (Col. 3, Line 12-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 & 10 & 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa et al. '456 in view of Girt '855 and further in view of Takahashi et al. US 2005/0227122.

As to Claim 8 & 10, Nakazawa et al. '456, does not disclose the stoichiometric ratios but, discloses manipulating oxides in order to better match the intermediate layer (Col. 3, Line 53-58). However, Girt '855 discloses a perpendicular recording medium having a substrate, a soft magnetic layer (3), an interlayer (4) corresponding to the claimed "nonmagnetic underlayer", a CoPt-based magnetic layers containing oxides of Cr and Ti, Cr and Nb, or Cr and Si (see Fig 5, paragraphs [0010]-[0019], [0023], [0025].) The reference provides examples in paragraph [0023] wherein the amount of oxygen in the magnetic layer is calculated to be 32 or 34 at% (i.e. 2 mol% TiO₂ (or SiO₂) + 10 mol% Cr₂O₃ = 32 at% O; 2 mol% of Nb₂O₅ + 10 mol% Cr₂O₃ = 34 at% O). These oxides are used to enhance magnetic properties and match the intermediate layers. It would have been obvious to optimize the amount and percentage to manipulate ratios in order to better match the intermediate layer. It has been held that where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC §102 or on prima facie obviousness under 35 USC §103, jointly or alternatively. *In re Best, Bolton, and Shaw*, 195 USPQ 430. (CCPA 1977).

With respect to claims 14 & 15, the intended use of the instantly claimed apparatus is noted, however, the intended use does not patentably distinguish said claimed apparatus over prior art. The intended use of the claims does not structurally limit the apparatus. In addition, the prior art apparatus is capable of performing the desired function.

Claims 12 & 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa et al. '456 in view of Girt '855 and further in view of Takahashi et al. US 2005/0227122

As to Claim 12 & 13, Nakazawa et al. '456 discloses underlayers but does not disclose the use of Ru. However, Ru is commonly used as an underlayer material in magnetic recording. Takahashi et al. US '122 teaches perpendicular magnetic recording utilizing two differing oxides (Paragraph 19) underlayers with elements including Ru (Paragraph 23, 72) and soft magnetic layer materials (Paragraph 6) used to enhance density (Paragraph 2). It would have been obvious to one skilled in the art to require the use of Ru as a major component and provide a soft magnetic underlayer in order to enhance the density as taught by Takahashi et al. '122. It has been held that "it is prima facie obvious to combine two compositions each of which is taught by prior art to be useful for same purpose in order to form third composition that is to be used for very same purpose; idea of combining them flows logically from their having been individually taught in prior art." In re Kerkhoven, 205 USPQ 1069 (C.C.P.A. 1980).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY D. HARRIS whose telephone number is (571)272-6508. The examiner can normally be reached on 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gary D. Harris/
Examiner, Art Unit 1794

/Holly Rickman/
Primary Examiner, Art Unit 1794